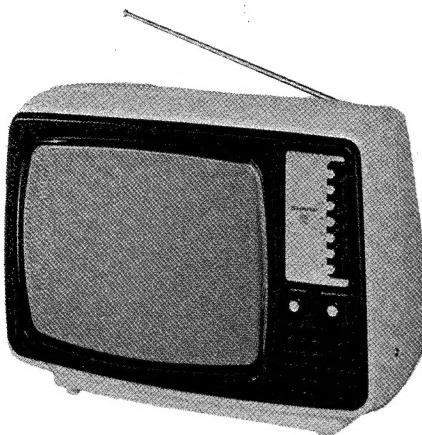




# Service Manual



Solid State Portable TV

## MODEL 12P-26

### SPECIFICATIONS

Power Supply ..... 220 Volts 50Hz AC or 12 Volts DC  
Power Consumption ..... 36 Watts AC  
16 Watts DC  
Tuning Range ..... CCIR Standard System  
VHF Channel 2 ~ 12  
UHF Channel 21 ~ 69  
Intermediate Frequency ..... Picture 38.9 MHz  
Sound 33.4 MHz  
Antenna Input Impedance ..... 75 ohms Unbalanced  
Intercarrier Sound System ..... 5.5 MHz  
Speaker Size & Type ..... 32 ohm 8cm Round Type P.D.S.  
Dimensions ..... Approx. 15-63/64" (W) x  
11-25/32" (H) x 11-5/8" (D)  
Weight ..... 17.2 lbs.

### Transistor Complement

Q1 2SC1070 or 2SC761 UHF RF Amp.  
Q2 2SC288 or 2SC684 UHF Oscillator  
Q101 2SC606 or 2SC683 (B) VHF RF Amp.  
Q102 2SC535 (B) VHF Mixer  
Q103 2SC535 (B) VHF IF Amp.  
Q104 2SC717 VHF Oscillator  
Q105 2SC606 UHF IF Amp.  
Q201 2SC682 (A) or 2SC398 1st Pix IF Amp.  
Q202 2SC682 (A) or 2SC398 2nd Pix IF Amp.  
Q203 2SC717 or 2SC383 3rd Pix IF Amp.  
Q401 2SC458 (C) Audio Amp.  
Q402 2SC1213 (C) Audio Output  
Q403 2SA673 (C) Audio Output  
Q601 2SC458 (C) Vertical Oscillator  
Q602 2SC1213 (D) Vertical Drive  
Q603 2SC1162WT (C) Vertical Output  
Q604 2SA715WT (C) Vertical Output  
Q701 2SC1213 (C) Horizontal Drive  
Q702 2SC681A Horizontal Output  
Q801 2SC454 (C) or 2SC380A (Y) 1st Video Amp.  
Q802 2SC1514 or 2SC1569 2nd Video Amp.  
Q101 2SC1213 (C) +B Error Amp.  
Q902 2SA616 (2) +B Regulator

### Diode Complement

D1 1S1555 UHF AGC Delay  
D2 1S1555 UHF Protector

D3	1SS16 or 1S1926	UHF Mixer
D4, D5, D6	1S2208 or BB105B	UHF Tuning
D7	WZ-081	UHF Voltage Regulator
D101, D102	1S2588	VHF Switching
D103	1S2209 or BB105G	VHF Tuning
D104	1S1555	VHF Protector
D105	1S2209 or BB105G	VHF Tuning
D106, D107	1S2588	VHF Switching
D108, D109	1S2209 or BB105G	VHF Tuning
D110	1S2588	VHF Switching
D111, D112	1S1555	VHF Switching
D201	1N60	Pix IF Detector
SR601, SR602	RH-DX0033TAZZ	Vertical Circuit
SR701	RH-DX0057TAZZ	Damper
SR702	RH-DX0056TAZZ	Boost
SR703	RH-DX0063CEZZ	Horizontal Circuit
SR704, SR705,	RH-DX0062CEZZ	Horizontal Circuit
SR706	RH-DX0033TAZZ	Horizontal Circuit
SR707	RH-DX0039TAZZ	+B Rectifier
SR901, SR902,	RH-DX0039TAZZ	Voltage Regulator
SR903, SR904	RH-DX0033TAZZ	Circuit
SR905	RH-EX0008TAZZ	Voltage Reference
ZD901	RH-EX0008TAZZ	
	Integrated Circuit	
IC-181	RH-IX0037CEZZ	Tuning Voltage Regulator
IC-251	RH-IX0007TAZZ	AGC & Sync. Separator
IC-301	RH-IX0001TAZZ	Sound IF Amp.
		Sound Detector &
		Audio Amp.
IC-701	RH-IX0008TAZZ	Horizontal AFC & Oscillator
	Miscellaneous Semiconductors	
VR401	RH-VX0004TAZZ	Audio Circuit
VR601	RH-VX0004TAZZ	Vertical Circuit
VR901	RH-VX0004TAZZ	Regulator Circuit
TH251	SKD-5	AGC Circuit
TH601	SKD-5	Vertical Circuit
	Tube	
V801	E2116/ A31-290W A31-20W	Picture Tube

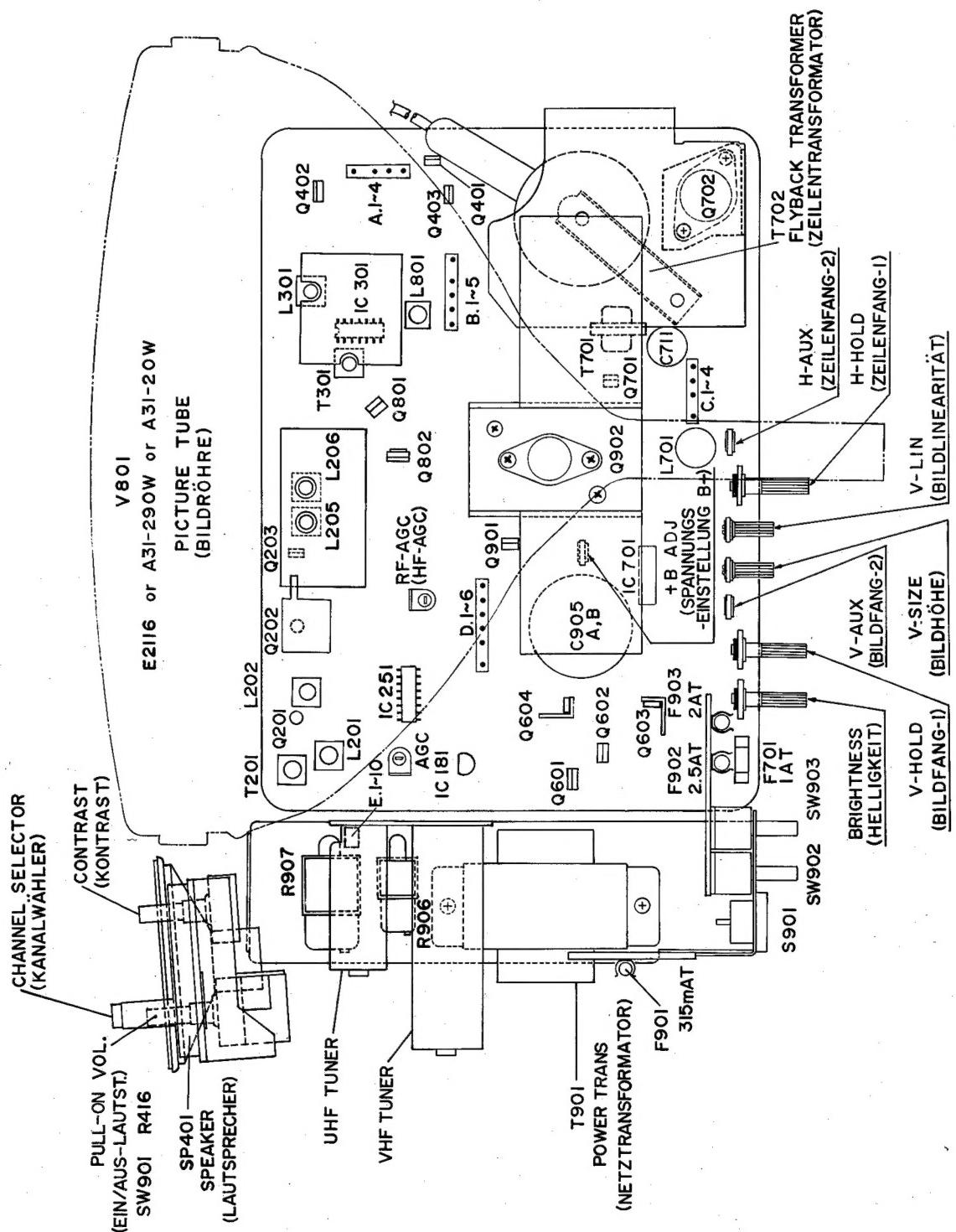


Figure 1 CHASSIS LAYOUT

## **DC OUTPUT VOLTAGE ALIGNMENT**

1. Set AC power supply voltage to 220V (50Hz).
2. Set AC-DC selector switch (SW903) to AC position and TV-CH selector switch (SW902) to TV position, and switch on the switch SW901 to turn on the unit. At the time, make sure that the unit has been in a normal condition.
3. Adjust the +B adjust control (collector of Q902) to  $11.5 \pm 0.2$ V.  
Caution: +B voltage is not adjust to over 13V for protection integrated circuit.

## **AGC Alignment**

1. Rotate the RF AGC control (R253) to the maximum counter-clockwise.
2. Receive a test pattern in normal operating receiver condition. (at CCIR)
3. Set the electric field intensity to  $60\text{dB} \pm 2\text{dB}$  and RF oscillator to the proper frequency.
4. Adjust the AGC control (R254) to  $1.0\text{Vp-p} \pm 0.1\text{V}$  detection output at TP801 that is verified oscilloscope.
5. Watching the picture in normal operating condition, rotate the RF AGC control (R253) to adjust it just before appearance of the noise in the picture.
6. Set the electric field intensity to  $95\text{dB} \pm 2\text{dB}$  and verify no anomalous developing as follows are appears.
  - a. Excessive Contrast
  - b. Horizontal sync lost party.

## **VERTICAL AND HORIZONTAL CIRCUITS ALIGNMENT**

### **Round Adjustment of Each Section**

1. Set the AC line voltage to 220V and verify the DC output voltage  $11.5 \pm 3$  Volts.
2. Receive a test pattern in normal operating receiver condition. (at CCIR)
3. Rotate the Brightness and Contrast controls to maximum clockwise.
4. Set the H-Hold control (R701) to a stabilized point.
5. Set the V-Hold control (R608) to the mechanical center and set V-Aux. control (R607) to a stabilized point.
6. Adjust V-Lin (R614) and V-Size (R612) controls for the best vertical linearity and picture size.
7. Both horizontal and vertical centering are accomplished by rotating the centering rings mounted on the back of the deflection yoke assembly.

### **V-Line and V-Size Adjustment**

Adjust the following steps with stabilize vertically.

1. Receive a test pattern in normal operating receiver condition. (at CCIR)
2. Adjust V-Line control (R614) to obtain the synthetical pattern (top and bottom) and the best linearity.
3. Adjust V-Size control (R612) to obtain the  $10 \sim 12\%$  over scanning.

### **V-Hold and V-Aux. Adjustment**

1. Receiver a test pattern in normal operating receiver conditions. (at CCIR)
2. V-Aux. control is used to maintain the proper operating range of the V-Hold control (R608). Set the V-Hold control (R608) to the center of mechanical rotation, then adjust the V-Aux. control until the picture is properly locked in sync.

### **H-Hold and Horizontal Amplitude Alignment**

1. Set the AC line voltage to 220 Volts and verify the DC output voltage  $11.5 \pm 0.2$  Volts.
2. Receive a test pattern in normal operating receiver condition. (at CCIR)
3. H-Aux. control (R707) is used to maintain the proper operating range of the H-Hold control (R701). Set the H-Hold (R701) control to the center of mechanical rotation, then adjust the H-Aux. control (R707) until the picture is properly locked in sync. vertically.
4. Turn counterclockwise the H-Hold (control) until the image will be distorted, then turn it clockwise until the image will resume its normal condition and suppose the pattern center position found at this time as being the point "a". Next, turn it clockwise until the image will be distorted, then turn it counterclockwise until the image will resume its original condition and suppose the pattern center position found this time as being the point "B". Finally, turn it counterclockwise until the pattern center comes to the geometrical center between the points "a" and "b".
5. Set AC-DC selector switch to DC position and set DC power supply voltage to the value where the raster will disappear. Then, adjust the centering magnet to make the raster come to the center of CRT.
6. Set AC-DC selector switch to AC position and adjust the over scanning to the range of 8% to 16%. (When the over scanning is found to exceed 16%, cut out the factory jumper for H-WIDTH to remove C710. With contrast control at "MAX" and bright control at "MIN", make sure the image is not distorted at both ends.)

## Electric Varactor Tuner Circuit

1. The electric varactor tuner uses variable capacitance diodes for all of its tuning circuits and DC voltage (tuning voltage) applied to these diodes is changed so that the desired channel is tuned in.
2. DC voltage applied to the diodes can be changed by changing variable resistance values inside the channel selector. (Figure 2).
3. The figures 3 and 4 represent tuning voltages of VHF tuner and UHF tuner, respectively.
4. The channel selector is a changeover switch of 3 bands, VHF-Low (2 to 4 CH), VHF-High (5 to 12 CH) and UHF. Supposed that the tuning voltage is 10 V, the VHF tuner is tuned in between 3 CH and 4 CH when the channel selector is set to VHF-Low, the VHF tuner is tuned in 9 CH when the selector is set to VHF-High, and the UHF tuner is tuned in 45 CH when the selector is set to UHF.

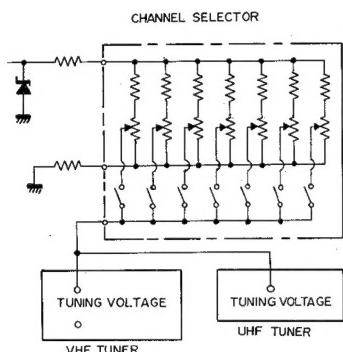


Figure 2

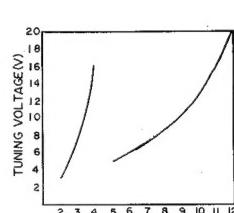


Figure 3

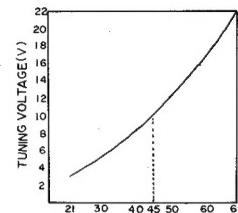


Figure 4

## CHASSIS REMOVAL

Whenever it becomes necessary to remove the chassis from the cabinet, proceed in the following manner.

1. Remove the six screws **(A)** and remove the back cabinet.
2. Pull out the all knobs from the front cabinet.
3. Disconnect the main chassis **(B)**, Power Trans former angle **(C)** and tuner angle **(D)**.
4. Remove the two screws **(E)**.
5. Remove the speaker lead **(F)**, Coating eath **(G)**, CRT socket **(H)**, Deflection yoke socket **(I)**, anode cap **(J)**, contrast control socket **(K)**, channel selector socket **(L)**, and wire hold **(M)** from the front of the cabinet.
6. Remove the two screws **(N)**.

## Removing and Installing Picture Tube

In order to remove or replace the picture tube, the chassis assemblies must be removed.

Refer to CHASSIS REMOVAL procedure.

When the chassis has been removed, proceed as follows.

1. Lay the cabinet face down on a soft pad so as not to mar the picture tube.
2. Remove the four screws **(O)** fixing the picture tube.
3. Remove the picture tube from the cabinet.

CAUTION: Refer to the caution label on the high voltage compartment cover. Always avoid handling the neck of the picture tube.

4. Fix the picture tube in the proper position of the front cabinet and fix four screws.
5. Reassemble the set.

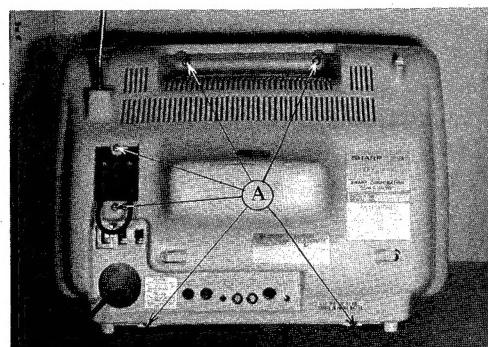


Figure 5

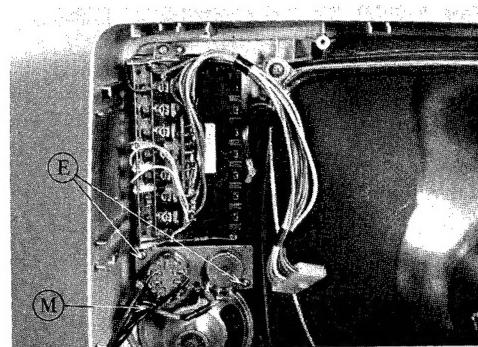


Figure 6

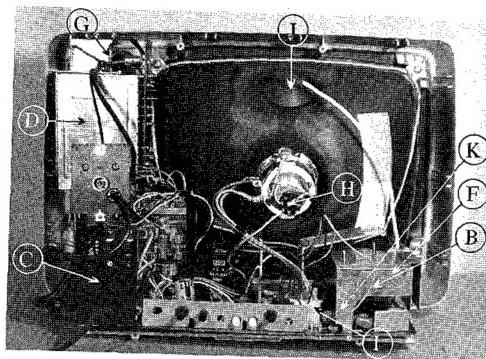


Figure 7

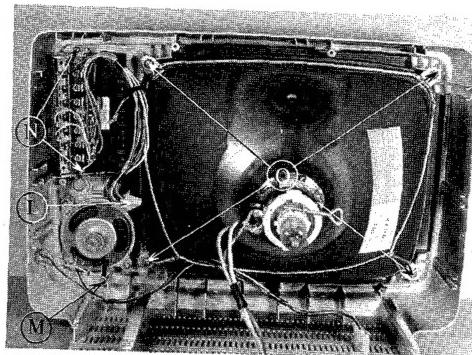


Figure 8

## PICTURE IF ALIGNMENT

- Supply the output of the sweep generator to TP203 (Base of Q203) through a 470 ohm resistor and a 0.01 MFD capacitor in series.
- Connect input terminal of the oscilloscope to TP801 (Emitter of Q801).
- Supply the 7~8V DC fixed bias to TP202.
- Adjust coils (L205 and L206) to obtain the waveform shown in figure 9.
- Supply the output of the sweep generator to TP (on VHF Tuner) through a 470 ohm resistor and a 0.01 MFD capacitor in series.
- Adjust the trap L201 to 33.4 MHz and L202 to 40.4 MHz.
- Supply the  $4.8 \pm 0.2$ V DC fixed bias to TP202.
- Adjust the transformers T101 (in VHF Tuner) and T201 to obtain the waveform shown in figure 10.
- If not obtain the waveform shown in figure 10, readjust the coils (L205 and L206) and the transformers (T101 and T201).

## 5.5 MHz TRAP ALIGNMENT

- Supply the 5.5 MHz center sweep output of the sweep generator to TP204 (base of Q801) through a 470 ohm resistor and a 0.01 MFD capacitor.
- Supply the 8V DC fixed bias to TP202.
- Connect the oscilloscope to the cathode of CRT.
- Adjust the coil L801 to set the minimum amplitude of 5.5 MHz.

## SOUND IF ALIGNMENT

- Supply the 8V DC fixed bias to TP202.
- Supply the FM 400Hz at 100% modulation of the sweep generator to TP204 (base of Q801) through a 0.01 MFD capacitor and a 470 ohm resistor in series.
- Connect the oscilloscope to the volume control (terminal NO.3 of R416) through a 0.0015 MFD capacitor in parallel. (Rotate the volume control to the minimum counter-clockwise)
- Set the output of the sweep generator to 100 dB.
- Adjust the coil (L301) until the maximum amplitude waveform is obtained on the oscilloscope.
- Set the output of the sweep generator to approximately 40 dB. (Drop out of limiter)
- Adjust the transformer (T301) to obtain the waveform shown in figure 11.  
If fail the above adjustment, the waveform should obtain as figure 12.

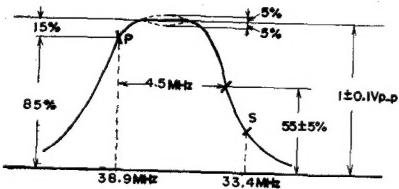


Figure 9

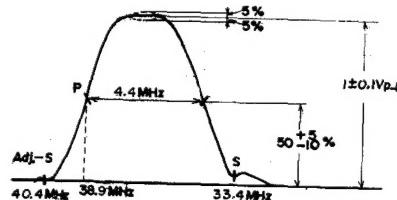


Figure 10

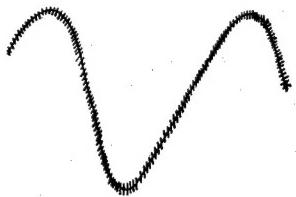


Figure 11



Figure 12

## VHF/UHF TUNER PERFORMANCE CHECK (Refer to Figure 13.)

### PRELIMINARY INFORMATION

Unless there is evidence of tampering or if electrical repairs have been made, tuner alignment is normally not required. Response Curve "A" is an indicator of the quality of tuner performance. If the response curve is obviously bad on all channels, repair, rather than alignment, is indicated. Check the B pluse voltages applied to the tuners. Also check for bad solder connections and contacts. Visually inspect the circuits for overheated components and obvious wiring defects.

NOTE: When checking overall RF-IF response curves, bear in mind that it is necessary to verify that the video IF circuitry is operating normally and is properly aligned before an evaluation can be made on the VHF RF-IF response curve.

Also, it is necessary to verify that the video IF circuitry and VHF tuner are operating normally and that these circuits are properly aligned before an evaluation can be made on the UHF RF-IF response curve.

### VHF TUNER PERFORMANCE CHECK

#### Test Equipment Connections

GENERAL . . . The set under test should be correctly fine tuned. Fine tuning should not be adjusted while performing this tuner check. Disconnect external antenna from VHF tuner.

OSCILLOSCOPE . . . With a 2.0V P-P calibration, connect direct probe through a 15K ohm resistor to TP801.

SWEEP GENERATOR . . . Connect output to the VHF tuner antenna terminals using proper matching pad.

MARKER GENERATOR . . . Connect markers at 38.9 MHz and 34.4 MHz loosely to Sweep Generator leads.

BIAS SUPPLY . . . Apply 4.5 ~ 4.8 volts bias to base of Q202. Adjust biases while chassis is operating.

#### Performance Check Turn set "on".

Starting with the VHF tuner placed in the Channel 6 position and the Sweep Generator set at the proper frequency, check the overall response curve as viewed on the Oscilloscope. This viewed curve should match, approximately, Response Curve "A". The same procedure should be used for Channels 12 through 2.

### UHF TUNER PERFORMANCE CHECK

#### Test Equipment Connections

GENERAL . . . The video IF Alignment and VHF Tuner Check should be completed prior to this procedure. Disconnect the external antenna from UHF tuner. All equipment connections are the same as for the VHF Tuner Performance Check except the Sweep Generator.

SWEEP GENERATOR (UHF) . . . Connect output to UHF tuner antenna terminals using proper matching pad.

#### Performance Check

Turn set and test equipment "on".

Place the VHF tuner in the UHF position.

Set the center frequency fo the Sweep Generator at 700 MHz. and tune the UHF tuner to this frequency (approximately Channel 49) so that the overall RF-IF response curce van be observed on the Oscilloscope. This response curve should be consistent with limits of the overall RF-IF Response Curve "A".

NOTE: The amplitude of the response curve should be kept at 1V P-P for this alignment.

Tune the Sweep Generator and the UHF tuner throughout the UHF range to check the overall performance.

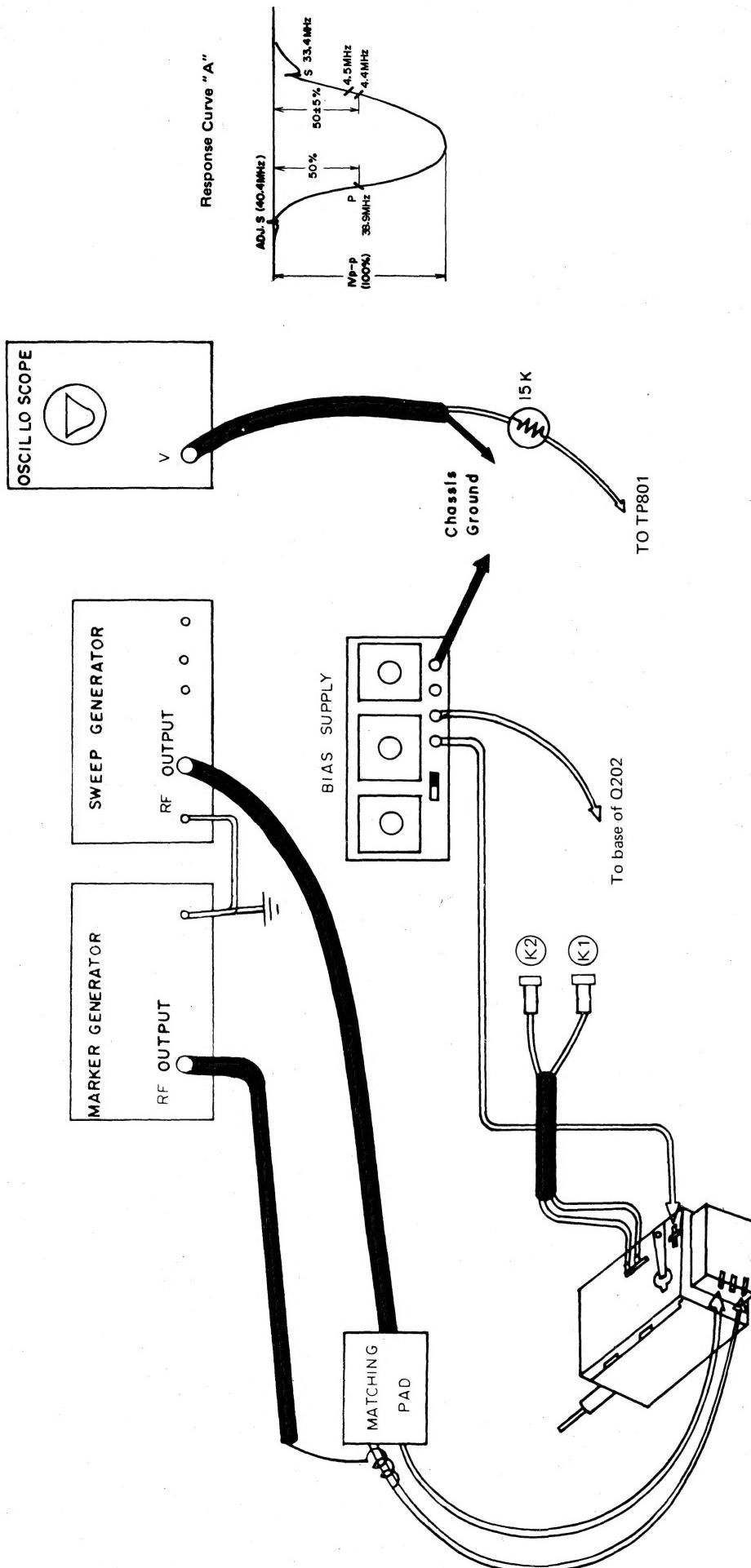
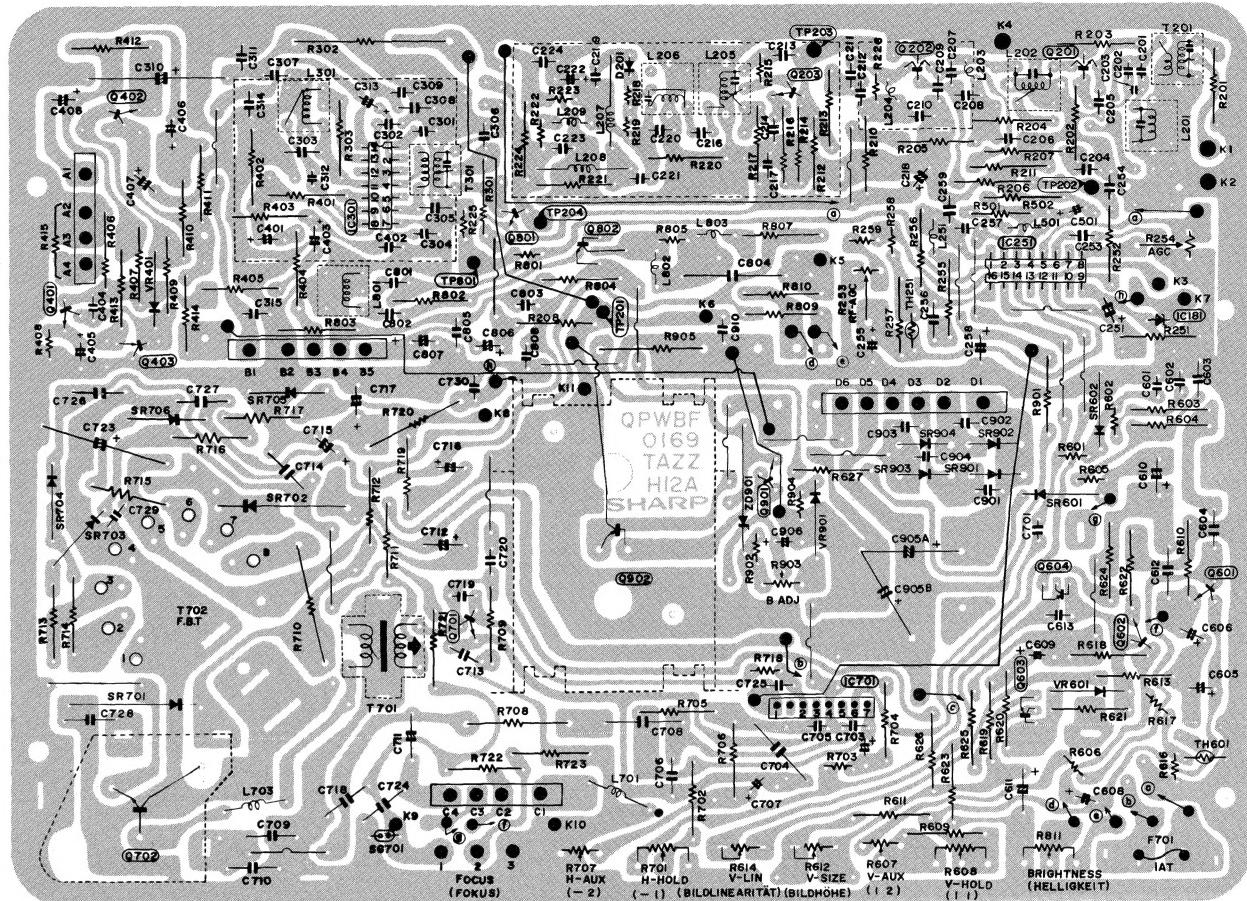
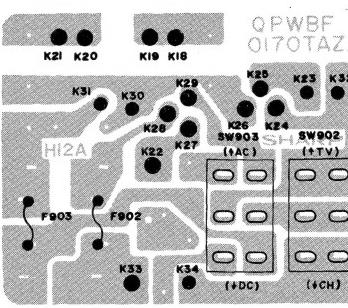


Figure 13

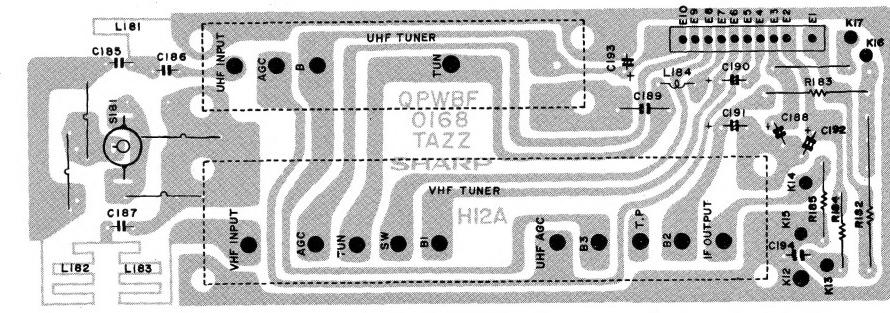
Wiring Side of P.W. Board



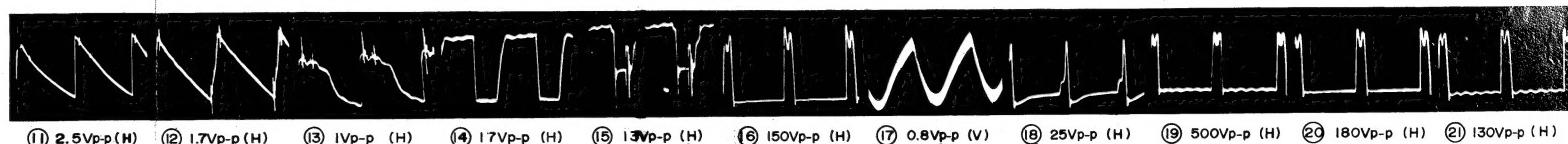
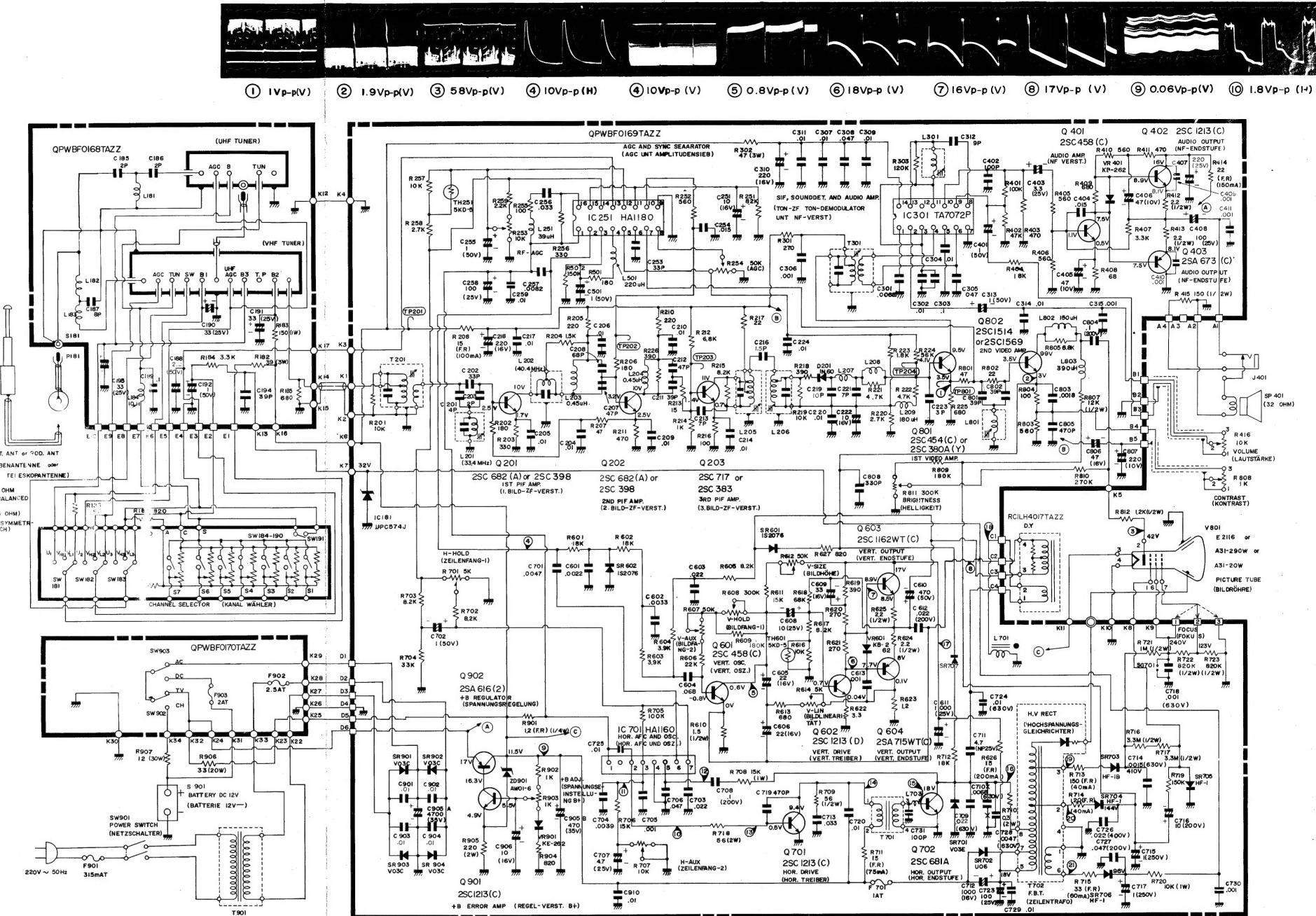
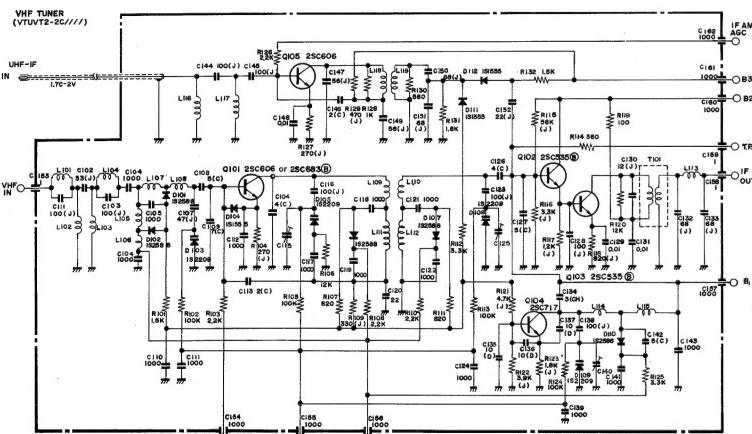
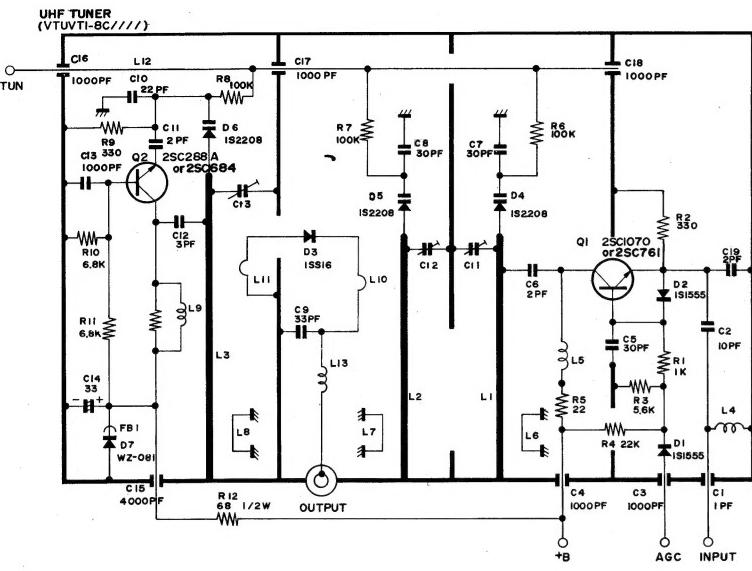
Main Circuit



Power Circuit

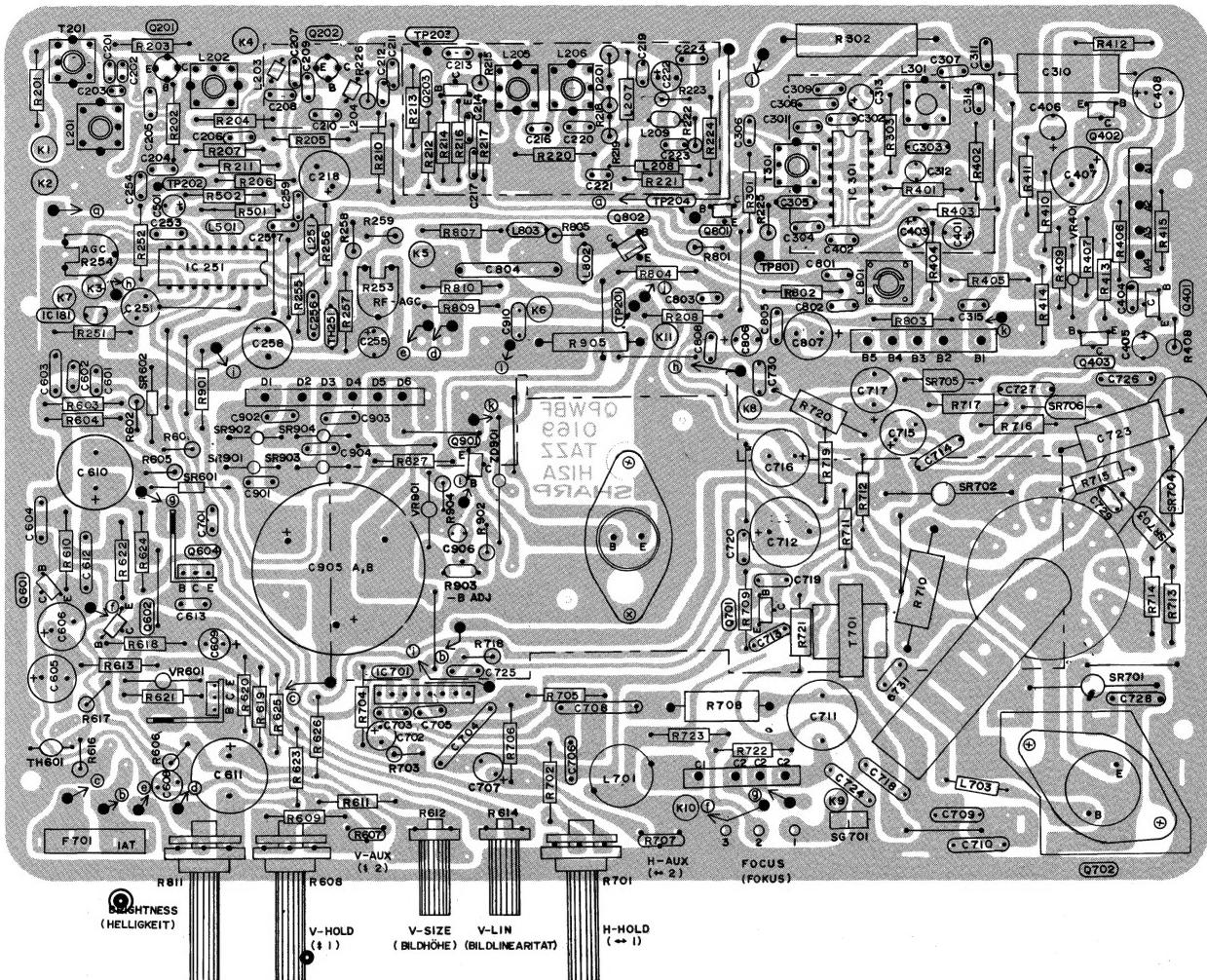


Tuner Circuit

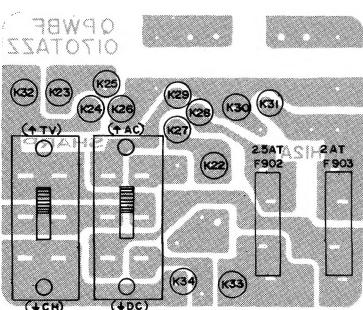


SCHEMATIC DIAGRAM

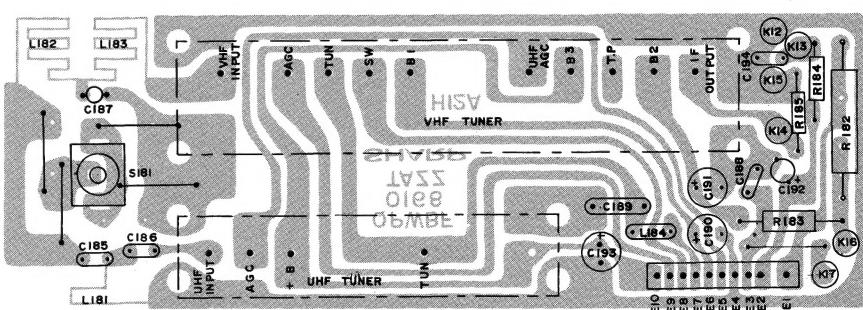
## **Component Side of P.W. Board**



## Main Circuit



## Power Circuit



## Tuner Circuit

# PARTS LIST

REF. NO.	NEW PART NAME	DESCRIPTION	CODE
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REF. NO.	NEW PART NAME	DESCRIPTION	CODE
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**CAPACITORS**

C185, C186	VCCSPA1H62R0C	2PF, 50V, .25PF, Discap	AA
C187	VCCSPA1H68R0D	8PF, 50V, Discap	AA
C188	VCQYKU1HM472K	.0047MFD, 50V, 10%, Mylar	AB
C189	VCQYSU1HM104K	.1MFD, 50V, 10%, Mylar	AC
C190, C191, C193	VCEAAH1EC336Y	33MFD, 25V, Electrolytic	AB
C192	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C194	VCCSPA1H6390J	39PF, 50V, Discap	AA
C201	VCCSPU1H64R0C	4PF, 50V, .25PF, Discap	AA
C202	VCCSPU1H6330J	33PF, 50V, 5%, Discap	AA
C203	VCCSPU1H62R0C	2PF, 50V, .25PF, Discap	AA
C204, C205, C206, C209, C210, C214, C217, C220, C224, C259	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C207, C212	VCCSPA1H6470J	47PF, 50V, 5%, Discap	AA
C208	VCCSPA1H6680J	68PF, 50V, 5%, Discap	AA
C211	VCCSPA1H6390J	39PF, 50V, 5%, Discap	AA
C213, C221	VCCSPA1H67R0D	7PF, 50V, Discap	AA
C216	VCCSPA1H61R5C	1.5PF, 50V, .25PF, Discap	AA
C218	VCEAAH1CC227Y	220MFD, 16V, Electrolytic	AC
C219	VCCSPA1H6100D	10PF, 50V, Discap	AA
C222	VCEAAH1CC106Y	10MFD, 16V, Electrolytic	AB
C223	VCCSPA1H63R0C	3PF, 50V, .25PF, Discap	AA
C251	VCEABU1CW106M	10MFD, 16V, Electrolytic	AD
C252	VCQPSB2JA103K	.01MFD, 630V, Polypro Film	AB
C253	VCCSPA1H6330J	33PF, 50V, 5%, Discap	AA
C254	VCQYKU1HM153K	.015MFD, 50V, 10%, Mylar	AB
C255	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C256	VCQYSU1HM333K	.033MFD, 50V, 10%, Mylar	AB
C257	VCQYKU1HM822K	.0082MFD, 50V, 10%, Mylar	AB
C258	VCEAAH1EC107Y	100MFD, 25V, Electrolytic	AC
C301	VCQYKU1HM682K	.0068MFD, 50V, 10%, Mylar	AB
C302, C304, C307, C309, C311, C314	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C303	VCQYKU1HM104K	.1MFD, 50V, 10%, Mylar	AC
C305, C308	VCQYKU1HM473K	.047MFD, 50V, 10%, Mylar	AC
C306, C315	VCKZPA1HB102K	.001MFD, 50V, 10%, Discap	AA
C310	VCEAAT1CW227Q	220MFD, 16V, Electrolytic	AD
C312	VCCWPU1H59R0D	9PF, 50V, Discap	AB
C313	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C401	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C402	VCCSPA1H6101K	100PF, 50V, 10%, Discap	AA
C403	VCEAAU1EW335R	3.3MFD, 25V, Electrolytic	AB
C404	VCQYKU1HM153K	.015MFD, 50V, 10%, Mylar	AB
C405, C406	VCEAAU1AW476Q	47MFD, 10V, Electrolytic	AC
C407	VCEAAH1EC227Y	220MFD, 25V, Electrolytic	AD

C408	VCEAAH1EC107Y	100MFD, 25V, Electrolytic	AC
C501	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C601	VCQYKU1HM222K	.0022MFD, 50V, 10%, Mylar	AB
C602	VCQYKU1HM332K	.0033MFD, 50V, 10%, Mylar	AB
C603	VCQYKU1HM233K	.022MFD, 50V, 10%, Mylar	AB
C604	VCQYSU1HM683K	.068MFD, 50V, 10%, Mylar	AC
C605	RC-EZ0029TAZZ	22MFD, 16V, Electrolytic	AD
C606	VCEAAH1EC106Y	10MFD, 25V, Electrolytic	AB
C609	VCEAAU1CW336Q	33MFD, 16V, Electrolytic	AC
C610	VCEAAH1EC477Y	470MFD, 50V, Electrolytic	AE
C611	VCEAAU1EW108Q	1000MFD, 25V, Electrolytic	AG
C612	VCQPSB2DA223K	.022MFD, 200V, 10%, Polypro Film	AB
C613	VCKZPA1HB102K	.001MFD, 50V, 10%, Discap	AA
C701	VCQYKU1HM472K	.0047MFD, 50V, 10%, Mylar	AB
C702	VCEAAH1HC105A	1MFD, 50V, Electrolytic	AB
C703	VCQYKU1HM223K	.022MFD, 50V, 10%, Mylar	AB
C704	VCQSMT1HS392J	.0039MFD, 50V, 5%, Styrene	AC
C705	VCQYKU1HM102K	.001MFD, 50V, 10%, Mylar	AB
C706	VCQYSU1HM473K	.047MFD, 50V, 10%, Mylar	AB
C707	VCEAAH1EC475A	4.7MFD, 25V, Electrolytic	AB
C708	VCQPS2DA104K	.1MFD, 200V, 10%, Polypro Film	AC
C709	VCQPS2JA223K	.022MFD, 630V, 10%, Polypro Film	AB
C710	VCQPSB2JA682K	.0068MFD, 630V, 10%, Polypro Film	AB
C711	RC-EZ0022TAZZ	4.7MFD, 25V, Spec. Electrolytic	AG
C712	VCEAAH1CC108Y	100MFD, 16V, Electrolytic	AE
C713	VCQYKU1HM333K	.033MFD, 50V, 10%, Mylar	AB
C714	VCQPSB2JA152K	.0015MFD, 630V, 10%, Polypro Film	AB
C715	VCEAAU2EW105R	1MFD, 250V, Electrolytic	AD
C717	VCEAAU2DW106Q	10MFD, 200V, Electrolytic	AE
C718	VCQPSB2JA102K	.001MFD, 630V, 10%, Polypro Film	AB
C719	VCKZPA1HB471K	470PF, 50V, 10%, Discap	AB
C720	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C725	VCKZPA1HF103Z	.01MFD, 50V, Discap	AA
C729	VCEAAT1EW107Q	100MFD, 25V, Electrolytic	AE
C723	VCQPSB2JA103K	.01MFD, 630V, 10%, Polypro Film	AB
C724	VCQPSB2GA223K	.022MFD, 400V, 10%, Polypro Film	AB
C726	VCQPSB2DA473K	.047MFD, 200V, 10%, Polypro Film	AC
C727	VCQPSB2JA472K	.0047MFD, 630V, 10%, Polypro Film	AB
C728	VCKZPA1HB102K	.001MFD, 50V, 10%, Discap	AA
C730	VCCSPA1H6101K	100PF, 50V, 10%, Discap	AA
C731	VCCSPA1H6390J	39PF, 50V, 5%, Discap	AA
C801, C802	VCCSPA1H6331K	330PF, 50V, 10%, Discap	AA
C803	VCQYKU1HM182K	.0018MFD, 50V, 10%, Mylar	AB
C804	VCQPS2DA104K	.1MFD, 200V, 10%, Polypro Film	AC
C805	VCKZPA1HB471K	470PF, 50V, 10%, Discap	AB
C806	VCEAAH1CC476Y	47MFD, 16V, Electrolytic	AB
C807	VCEAAH1AC227Y	220MFD, 10V, Electrolytic	AC
C808	VCCSPA1H6331K	330PF, 50V, 10%, Discap	AA
C901, C902	VCKZPA1HB102K	.001MFD, 50V, 10%, Discap	AA
C903,	VCEA1Q1VBA94Q	4700MFD/470MFD, 35V, Electrolytic	AP
C904	VCEAAH1CC106Y	10MFD, 16V, Electrolytic	AB
C905	VCKZPA1HF103Z	.01MFD, 50V, Electrolytic	AA

**RESISTOR**

R181	VRD-ST2EY561J	560 ohm	AA
R182	VRS-PT3LB390J	39 ohm, 3W, 5%, Oxide Film	AC
R183	VRS-PT3AB151J	150 ohm, 1W, 5%, Oxide Film	AB

## PARTS LIST

REF. NO.	NEW PART NAME	DESCRIPTION	CODE	REF. NO.	NEW PART NAME	DESCRIPTION	CODE	
R184	VRD-ST2EY332J	3.3K ohm	AA	R611	VRD-ST2EY153J	15K ohm	AA	
R185	VRD-ST2EY681J	680 ohm	AA	R613	VRD-ST2EY681J	680 ohm	AA	
R186	VRC-MT2EG470J	47 ohm	AA	R616	VRD-SU2EY103J	10K ohm	AA	
R187	VRD-ST2EY821J	820 ohm	AA	R618	VRD-ST2EY683J	68K ohm	AA	
R201	VRC-MB2EG103K	10K ohm, 1/4W, 10%, Carbon	AA	R619	VRD-SB2EY391J	390 ohm	AA	
R202	VRC-MB2EG181K	180 ohm, 1/4W, 10%, Carbon	AA	R620	VRD-ST2EY271J	270 ohm	AA	
R206	VRC-MB2EG331K	330 ohm, 1/4W, 10%, Carbon	AA	R621	VRD-ST2EY3R3J	3.3 ohm	AA	
R203	VRC-MB2EG152J	1.5K ohm	AA	R622	VRD-SB2EY1R2J	1.2 ohm	AA	
R204	VRC-MB2EG221K	220 ohm, 1/4W, 10%, Carbon	AA	R624	VRD-SA2HD2R2J	2.2 ohm, 1/2W, 5%, Carbon	AA	
R205	VRC-MB2EG470K	47 ohm, 1/4W, 10%, Carbon	AA	R625	RR-XZ0009TAZZ	15 ohm, 200mA, Fuse Resistor	AD	
R207	RR-XZ0006TAZZ	15 ohm, 100mA, Fuse Resistor	AD	R627	VRD-ST2EY821J	820 ohm	AA	
R211	VRC-MB2EG471K	470 ohm, 1/4W, 10%, Carbon	AA	R702	VRD-ST2EY822J	8.2K ohm	AA	
R212	VRC-MB2EG682K	6.8K ohm, 1/4W, 10%, Carbon	AA	R703	VRD-SU2EY822J	8.2K ohm	AA	
R213	VRC-MB2EG150K	15 ohm, 1/4W, 10%, Carbon	AA	R704	VRD-ST2EY333J	33K ohm	AA	
R214	VRC-MB2EG102K	1K ohm, 1/4W, 10%, Carbon	AA	R705	VRD-ST2EY104J	100K ohm	AA	
R215	VRC-MT2EG822K	8.2K ohm, 1/4W, 10%, Carbon	AA	R706	VRN-RT2EK153J	15K ohm, 1/4W, 5%, Metalize Film	AA	
R216	VRC-MB2EG101K	100 ohm, 1/4W, 10%, Carbon	AA	R708	VRS-PT3AB153J	15K ohm, 1W, 5%, Oxide Film	AB	
R217	VRC-MB2EG220K	22 ohm, 1/4W, 10%, Carbon	AA	R709	VRD-SA2HD560J	56 ohm, 1/2W, 5%, Oxide Film	AA	
R218	VRC-MT2EG391K	390 ohm, 1/4W, 10%, Carbon	AA	R710	VRW-KT3DDR30K	0.3 ohm, 2W, 10%, Cement	AC	
R226	VRC-MT2EG103K	10K ohm, 1/4W, 10%, Carbon	AA	R711	RR-XZ0005TAZZ	15 ohm, 75mA, Fuse Resistor	AD	
R220	VRD-ST2EY272J	2.7K ohm	AA	R712	VRD-ST2EY183J	18K ohm	AA	
R221	VRC-MB2EG472K	4.7K ohm, 1/4W, 10%, Carbon	AA	R713	RR-XZ0010TAZZ	150 ohm, 40mA, Fuse Resistor	AD	
R222	VRC-MT2EG472K	4.7K ohm, 1/4W, 10%, Carbon	AA	R714	RR-XZ0013TAZZ	120 ohm, 40mA, Fuse Resistor	AD	
R223	VRC-MT2EG182K	1.8K ohm, 1/4W, 10%, Carbon	AA	R715	RR-XZ0011TAZZ	33 ohm, 60mA, Fuse Resistor	AD	
R224	VRD-ST2EY563J	56K ohm	AA	R716	VRD-SA2HD335J	3.3 Meg ohm, 1/2W, 5%, Carbon	AA	
R225	VRC-MT2EG681K	680 ohm, 1/4W, 10%, Carbon	AA	R717	VRS-PT3DB560J	56 ohm, 2W, 5%, Oxide Film	AB	
R251	VRD-ST2EY822J	8.2K ohm	AA	R719	VRD-ST2EY154J	150K ohm	AA	
R252	VRD-ST2EY561J	560 ohm	AA	R720	VRS-PT3AB103J	10K ohm, 1W, 5%, Oxide Film	AB	
R255	VRD-ST2EY101J	100 ohm	AA	R721	VRD-SA2HD105J	1 Meg ohm, 1/2W, 5%, Carbon	AA	
R256	VRD-ST2EY331J	330 ohm	AA	R722	VRD-SA2HD824J	820K ohm, 1/2W, 5%, Carbon	AA	
R257	VRD-ST2EY103J	10K ohm	AA	R723	VRD-SA2HD561J	560 ohm	AA	
R258	VRD-SU2EY272J	2.7K ohm	AA	R801	VRC-MT2EG470K	47 ohm, 1/4W, 10%, Carbon	AA	
R259	VRD-SU2EY222J	2.2K ohm	AA	R802	VRC-MB2EG220K	22 ohm, 1/4W, 10%, Carbon	AA	
R301	VRC-MB2EG271K	270 ohm, 1/4W, 10%, Carbon	AA	R803	VRD-ST2EY561J	560 ohm	AA	
R302	VRS-PT3LB470K	47 ohm, 3W, 10%, Oxide Film	AC	R804	VRD-ST2EY101J	100 ohm	AA	
R303	VRC-MB2EG124K	120K ohm, 1/4W, 10%, Carbon	AA	R805	VRD-SU2EY682J	6.8K ohm	AA	
R401	VRC-MB2EG104K	100K ohm, 1/4W, 10%, Carbon	AA	R807	VRD-SA2HD123J	12K ohm, 1/2W, 5%, Carbon	AA	
R402	VRC-MB2EG473K	47K ohm, 1/4W, 10%, Carbon	AA	R809	VRD-ST2EY184J	180K ohm	AA	
R403	VRD-ST2EY471J	470 ohm	AA	R810	VRD-ST2EY274J	270K ohm	AA	
R404	VRD-ST2EY183J	18K ohm	AA	R901	RR-XZ0012TAZZ	1.2 ohm, 1/4W, 10%, Fuse Resistor	AD	
R405	VRD-ST2EY561J	560 ohm	AA	R902	VRD-SU2EY102J	1K ohm	AA	
R406	VRD-ST2EY332J	3.3K ohm	AA	R904	VRC-MT2EG821J	820 ohm	AA	
R407	VRD-SU2EY680J	68 ohm	AA	R905	VRS-PT3DB221J	220 ohm, 2W, 5%, Oxide Film	AB	
R408	VRD-ST2EY681J	680 ohm	AA	R906	VRW-CV4DD330K	33 ohm, 20W, 10%, Resin	AF	
R409	VRD-SB2EY561J	560 ohm	AA	R907	VRW-CV4LD120K	12 ohm, 30W, 10%, Resin	AG	
R411	VRD-SB2EY471J	470 ohm	AA	Unless otherwise specified all resistor are 1/4W, 5% Carbon type.				
R412	VRD-SA2HD2R2J	2.2 ohm, 1/2W, 5%, Carbon	AA					
R413	RR-XZ0008TAZZ	22 ohm, 150mA Fuse Resistor	AD					
R414	VRD-SA2HD151J	150 ohm, 1/2W, 5%, Carbon	AA					
R415	VRD-SB2EY181J	180 ohm	AA					
R501	VRD-ST2EY154J	150K ohm	AA					
R601	VRD-SU2EY183J	18K ohm	AA					
R602	VRD-SB2EY392J	3.9K ohm	AA					
R603	VRD-ST2EY392J	3.9K ohm	AA					
R604	VRD-SU2EY822J	8.2K ohm	AA					
R605	VRD-SU2EY223J	22K ohm	AA					
R606	VRD-ST2EY184J	180K ohm	AA					
R609	VRD-SA2HD1R5J	1.5 ohm, 1/2W, 5%, Carbon	AA					
R610	VRD-SA2HD2R2J	2.2 ohm, 1/2W, 5%, Carbon	AA					
<b>CONTROLS</b>								
R253	RVR-M7074TAZZ	10K ohm, Pot., RF AGC	AC					
R254	RVR-M7073TAZZ	10K ohm, Pot., AGC	AC					
R416	RVR-A4001TAZZ	10K ohm, Pot., Pull-On/Volume	AQ					
SW901	R607	RVR-M7010TAZZ	50K ohm, Pot., V-Aux.					
	R608	RVR-M7051TAZZ	300K ohm, Pot., V-Hold					
	R612	RVR-M7076TAZZ	50K ohm, Pot., V-Size					
	R614	RVR-M7075TAZZ	5K ohm, Pot., V-Lin					
	R701	RVR-M7077TAZZ	5K ohm, Pot., H-Hold					
	R707	RVR-M7053TAZZ	10K ohm, Pot., H-Aux					
	R808	RVR-E1004TAZZ	1K ohm, Pot., Contrast					
	R811	RVR-M7051TAZZ	300K ohm, Pot., Brightness					
	R903	RVR-M7046TAZZ	1K ohm, Pot., +B Adj.					

Unless otherwise specified all resistor are  $\frac{1}{4}$ W, 5% Carbon type.

## CONTROLS

R253	RVR-M7074TAZZ	10K ohm, Pot., RF AGC	A C
R254	RVR-M7073TAZZ	10K ohm, Pot., AGC	A C
R416, SW901	RVR-A4001TAZZ	10K ohm, Pot., Pull-On/ Volume	A Q
R607	RVR-M7010TAZZ	50K ohm, Pot., V-Aux.	A C
R608	RVR-M7051TAZZ	300K ohm, Pot., V-Hold	A D
R612	RVR-M7076TAZZ	50K ohm, Pot., V-Size	A C
R614	RVR-M7075TAZZ	5K ohm, Pot., V-Lin	A C
R701	RVR-M7077TAZZ	5K ohm, Pot., H-Hold	A D
R707	RVR-M7053TAZZ	10K ohm, Pot., H-Aux	A C
R808	RVR-E1004TAZZ	1K ohm, Pot., Contrast	A F
R811	RVR-M7051TAZZ	300K ohm, Pot., Brightness	A D
R903	RVR-M7046TAZZ	1K ohm, Pot., +B Adj.	A C

# PARTS LIST

REF. NO.	NEW PART NAME	DESCRIPTION	CODE
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**COILS AND TRANSFORMERS**

L184	RCILH4017TAZZ	Deflection Yoke	AW
	VP-LF100K0000	Coil, Peaking	AB
L201	RCILI0174TAZZ	Coil, Sound Trap (33.4MHz)	AE
L202	RCILI0092TAZZ	Coil, Adj. Trap (40.4MHz)	AE
L203,	RCILF0022TAZZ	Coil, Peaking	AC
L204			
L205	RCILI0139TAZZ	Coil, Pix Detector	AE
L206	RCILI0175TAZZ	Coil, Pix Detector	AE
L207,	RCILF0001TAZZ	Coil, Filter	AD
L208			
L209	VP-LF181K0000	Coil, Peaking	AB
L251	VP-LF390K0000	Coil, Peaking	AB
L301	RCILI0173TAZZ	Coil, Sound Detector	AE
L501	VP-LF221K0000	Coil, Peaking	AB
L701	RCILZ0043TAZZ	Coil, H-Lin	AH
L702	RCILF0005TAZZ	Coil	AA
L703	RCILZ0016TAZZ	Coil	AB
L801	RCILI0071TAZZ	Coil, 5.5MHz	AE
L802	VP-LF151K0000	Coil, Peaking	AB
L803	VP-LF391K0000	Coil, Peaking	AB
T201	RCILI0091TAZZ	Transformer, 1st Pix IF	AE
T301	RCILI0176TAZZ	Transformer, Sound IF	AE
T701	RTRNT0017TAZZ	Transformer, Horizontal Drive	AG
T702	RTRNF2023TAZZ	Transformer, Horizontal Flyback	AZ
T901	RTRNP0100TAZZ	Transformer, Power	AY

REF. NO.	NEW PART NAME	DESCRIPTION	CODE
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**MISCELLANEOUS**

	GCABA1539TASA	Cabinet, Front, (Red)	AW	
	GCABA1539TASB	Cabinet, Front, (White)	AW	
	GCABB1539TASA	Cabinet, Back, (Red)	AV	
	GCABB1539TASB	Cabinet, Back, (White)	AV	
	JKNBK1051CESA	Knob, Pull-On/Volume, Contrast	AF	
	QANTR0011TAZZ	Antenna, Telescoping Monopole	AL	
	VTUVT2-2C////	Tuner, VHF	BH	
	VTUVT1-8C////	Tuner, UHF	BD	
	QLSC-0001TAZZ	Channel Selector	BG	
	QSOCN0604CEZZ	Socket, Power	AB	
	QSOCN0502CEZZ	Socket, Volume, Contrast	AB	
	QSOCN0403CEZZ	Socket, Sound	AB	
	QSOCN0009TAZZ	Socket, Tuner Combine	AA	
	QSOCB0002TAZZ	Socket, DC	AD	
	QSOCV0701SEZZ	Socket, CRT	AC	
	QPLGN0404CEZZ	Plug, Sound	AB	
	QPLGN0505CEZZ	Plug, Volume, Contrast	AB	
	QPLGN0603CEZZ	Plug, Power	AB	
	QPLGN0016TAZZ	Plug, Tuner	AC	
	QJAKA0001CEZZ	Jack, Earphbone	AC	
F901	QFS-C1021TAZZ	Fuse, 1AT	AE	
F902	QFS-C2521TAZZ	Fuse, 2.5AT	AF	
F903	QFS-C2022TAZZ	Fuse, 2AT	AE	
SW902,	SW903)	SW903) QSW-S0009TAZZ	Switch, AC-DC/Change	AL

**Printed Wiring Board**

	DUNTKO674HA05	(DUNTK0674RA05, DUNTK0675RA05) Unit	CB
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